



cinefex

...the journal of cinematic illusions

editor & publisher
Don Shay

associate editor
Jody Duncan

contributing editors
Janine Pourroy
Adam Eisenberg

editorial assistant
Ann Dredla

CINEFEX 30 — May 1987. Published quarterly at P.O. Box 20027, Riverside, California 92516. Subscriptions (U.S.): four issues — \$15; eight issues — \$25; twelve issues — \$35. Return postage must accompany all unsolicited manuscripts, photos or other materials. Printed by Valley Printers, Riverside, California; color separations by Vivicolour, City of Industry, California. Contents copyright © 1987 by Don Shay. All rights reserved. Reproduction in whole or in part without written permission is prohibited.

The Care and Feeding of Audrey II 4

For someone with Lyle Conway's background, *Little Shop of Horrors* was a dream come true — and a nightmare. Enlisted by director Frank Oz to design and create a believable plant character that could hold its own in a multimillion dollar musical comedy, Conway and a crew of forty animatronics specialists rose to the challenge by producing six fully-articulated versions of Audrey II ranging in size from four-and-a-half inches to twelve-and-a-half feet — and then taught the largest three how to speak and sing. *Article by Jody Duncan.*

A Question of Perspective 30

Seeking major league effects on a minor league budget, producer John Kemeny and director Tibor Takacs turned to effects designer Randall William Cook for their supernatural thriller *The Gate*. Working with a hand-picked team of professionals, Cook orchestrated a wide range of mystifying effects — including a giant stop-motion demon and a swarm of devilish minions rendered tiny by some ingenious illusory techniques seldom employed in recent years. *Article by Adam Eisenberg.*

Of Daggers and Demons 46

For Industrial Light and Magic, *The Golden Child* was business as usual — winged demons, slithering snake women, even dancing Pepsi cans. But merging these fantasy elements into a gritty urban street comedy starring Eddie Murphy was a major stylistic challenge. Rising to the occasion was a team of software engineers and puppet animators who managed to blur the line between real and unreal by employing a prototype field motion control system to convincingly incorporate stop-motion figures into hand-held action scenes. *Article by Paul Mandell.*

FRONT COVER — Audrey II sizes up Audrey I in *Little Shop of Horrors*.

A demon challenges the forces of good in *The Golden Child* — BACK COVER.





THE CARE AND FEEDING OF AUDREY

*article by
Jody D*









rehearsal period was over, we had to deal with three different prototypes; and every time the prototype changed, there would be changes in the shape of the lips or the way the cables worked. So it was a bit like starting all over again with each new refinement. The songs kept changing, too, which was very frustrating. And new people were being added all the time. After Robert and I had been working for a few days, Sue Dacre came in to work the little extra jaw — which was just a small flap that gave that plant some additional movement. I was on the bottom lip and Robert was on the top lip and Brian Henson then joined us to manipulate the jaws themselves. That was another big adjustment, because up until then we had been working on the lip movements without the added complication of a jaw actually opening and closing. By the time we got to the last prototype, we had pretty well worked it out, although it was still very difficult. One of the recurring problems was with the 'f' shape — we couldn't get the lips pulled back far enough to make that sound. It was rather important, of course, because this was the plant that was always saying, 'Feed me!' We never really got it. If you look at the film closely you can see that he is actually saying, 'Feed me!'"

Scanlan and his crew kept cranking out revised versions of the prototype as they strove to solve problems with the foam skin. "We had to find a way for the skull to support the foam so that it would form natural looking creases when it spoke, rather than creases that looked grotesque," Scanlan explained. "When an actual person speaks, his facial skin creases and folds in ways we consider acceptable; and we had to find a way to match that with the plant. We wound up almost 'floating' the foam on the skull. It wasn't anchored down, so it was able to shift back and forth as the plant spoke without bunching up or creasing in the wrong place. Once we got that problem worked out, we had a satisfactory prototype."

The finished prototype was equipped with special mechanisms to meet the specific demands of lip-syncing. "Forming the proper shapes with the lips wasn't the main problem," Scanlan commented. "That had been done before. The problem came in trying to do it with the necessary *speed*. You can get the speed when you're dealing with most puppet movements because you don't have to be absolutely precise. But the lip-sync had to be fast *and* precise, and we had to come up with mechanics that would make that possible. We used a much heavier cable than we normally do, for instance. In some cases we ran a solid wire rather than a normal cable to give us very direct control. The controls underneath the stage were very

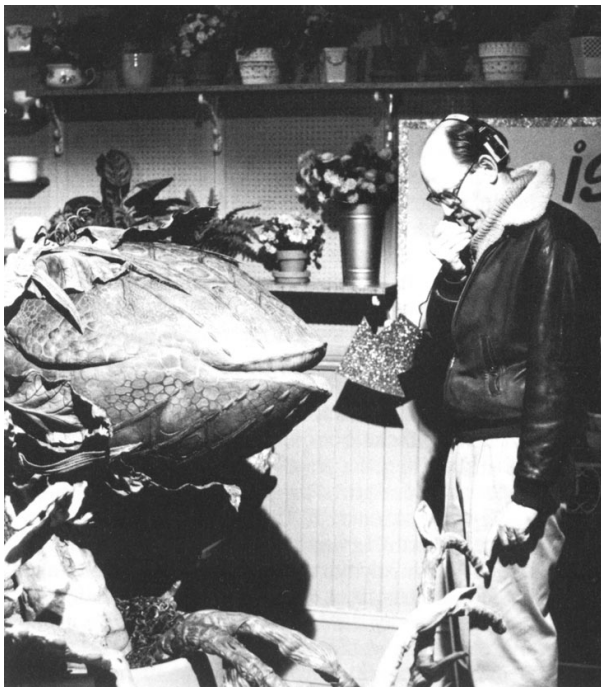


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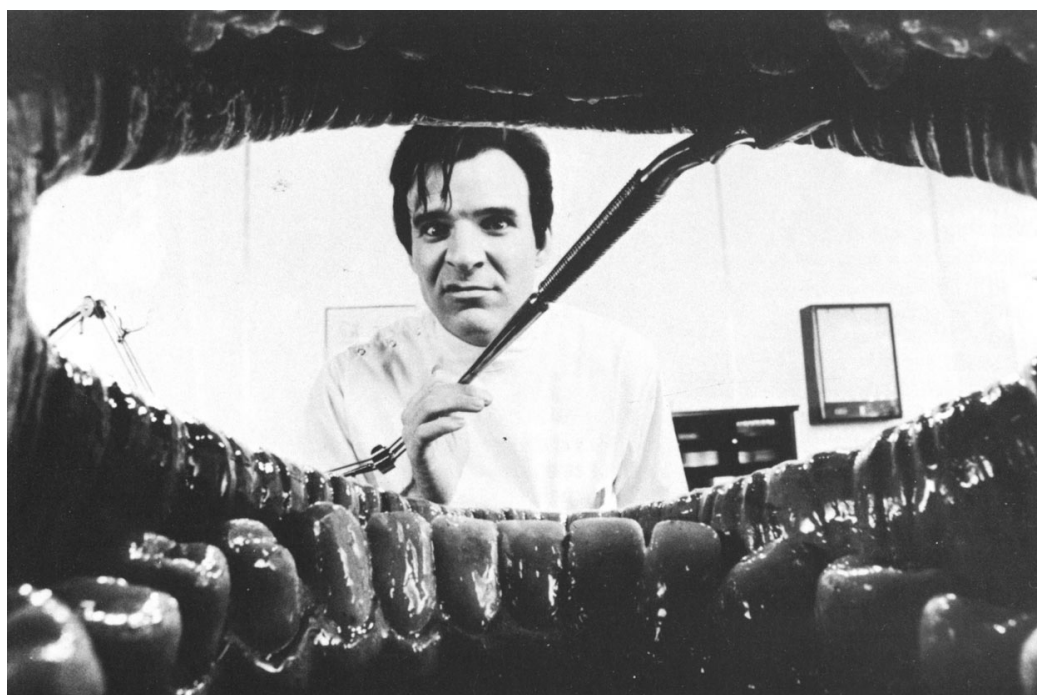
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CINEFEX 30



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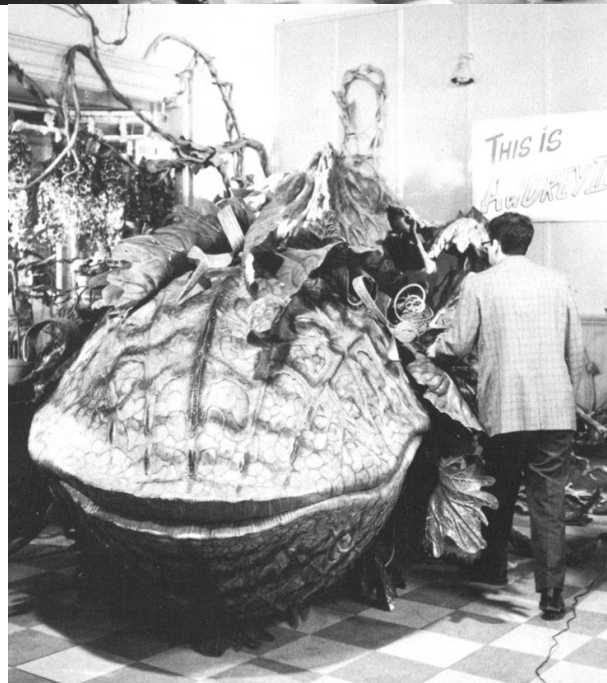


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Electronics wizard Bran Ferren, whose film credits include *Blowout*, *Tempest* and *Altered States*, was brought in towards the end of the production schedule to produce the final demise of Audrey II. "I designed the electrocution and explosion sequence," Ferren stated, "based on discussions that I had with Frank Oz and Eric Angelson, who was the production supervisor for The Geffen Company. We wanted something that was funny, that would work visually within the context of the picture. And we wanted something that would be a big finish. The problem was, 'How do we make the plant destructible?' The plant had originally been conceived as *indestructible* and there had been several scenes in the film to back that up. There was a scene, for instance, in which Seymour shot the plant and the bullets had no effect on it. So we edited things like that out — scenes that indicated that the plant was too durable. We considered a lot of different ways to destroy the plant. Weed killer was discussed. We also thought about using the old *Jaws*-type ending, with pressurized air tanks blowing the thing up. Finally we settled on the rather surreal, stylized electrocution that you see in the film."

Producing the spectacular electrical demise of the plant was a matter of combining many standard techniques. "The ending was a mixture of live-action and miniature effects," Ferren noted. "We used three miniature versions of the plant that we built specifically for the end sequence. The largest one was six to eight feet tall and the smallest was about three feet. Lots of different techniques were used to produce the electrocution — rotoscope mattes, bluescreen mattes, even computer animation. Some of the matting was done on high-resolution video. There was also a lot of motion control camera work using our portable motion control system. What distinguishes the electrocution end sequence is that we couldn't figure out one simple



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"One of the more interesting things about the sequence was that even though we were shooting high-speed, we had to sync all of the plant's movements to the live-action. We did that by building a computer so that we could sync the plant's mouth and neck and lips at normal speed and then accelerate the whole thing up to five times speed to match the high-speed camera. There were certain things that the plant had to say or do that were scripted — for instance, it had to laugh and say, 'Here I come for you.' So we used that program to record the movements at normal speed, and then modified it to work at

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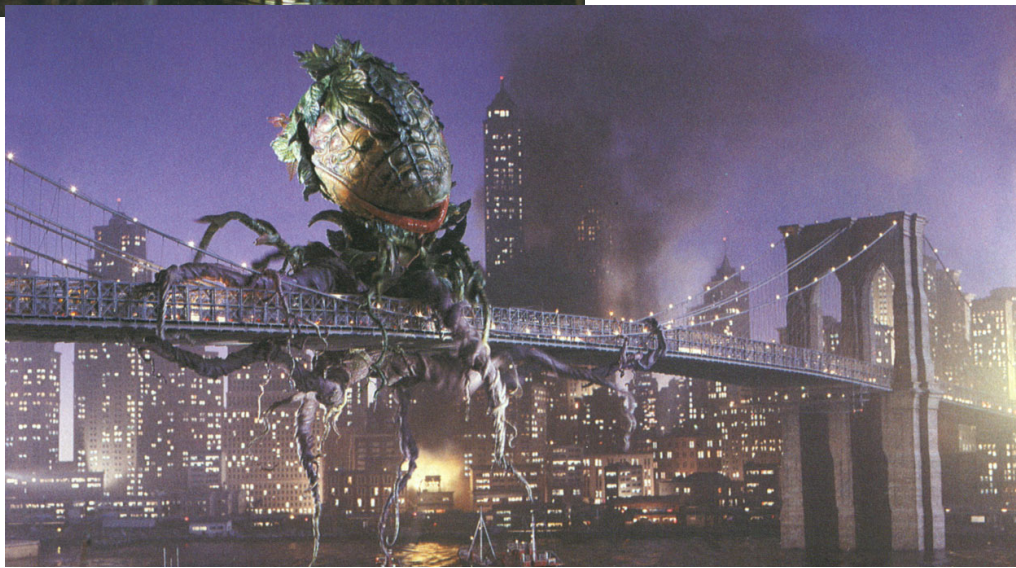
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A shot of the giant plant bursting through the wall of a movie theater proved to be one of the most challenging. "The problem with that shot was that we had to blend it into a blue-backing



In the film's original ending — reshot after preview audiences found it too downbeat — both Audrey and Seymour were ultimately consumed by the alien vegetable. Growing and multiplying with profusion.



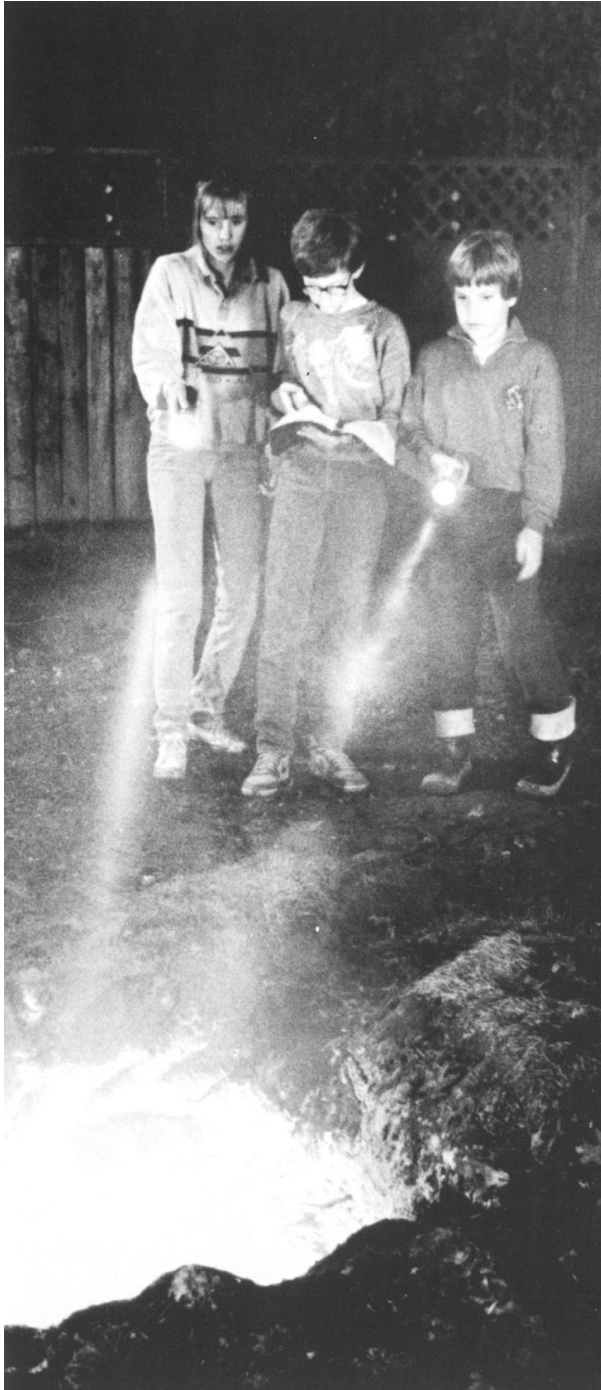


difference. The sequence shows a train of plants in the background. Then, in the foreground, a train is coming in from the right and there is a large, open right across the track. The train jumps into the plant's mouth and the plant eats it. The plant's movement was controlled, but the train itself was just a set of cars.

Another sequence involved several people walking across the Brooklyn Bridge. Though two of the people were articulated, others in the background were just people. "Conway had a few with just air rams in them so they could go up and down." The Brooklyn Bridge set is a realistic reconstruction. Twenty-five feet high, it is an actual suspension bridge and was used for people to walk across. Frames constructed from inch steel box sections — covered with brick — were used for the upright pieces. The walkways were carbon fiber strips with rubber mats. They served as the roadway. Carbon fiber rods were used for the suspension cables.

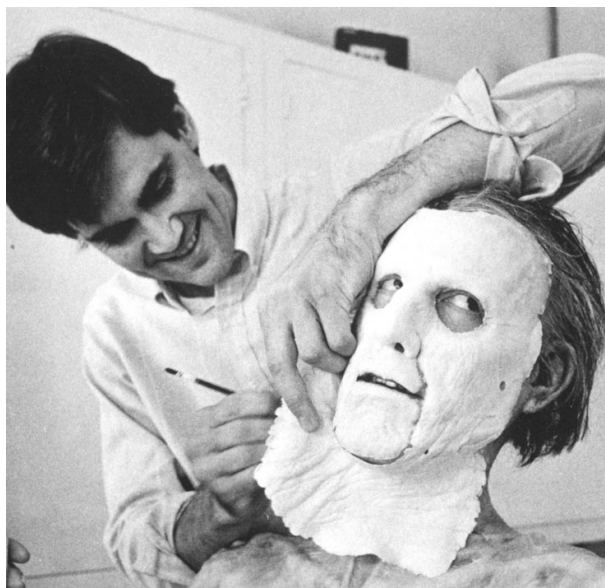


**A QUESTION OF
PERSPECTIVE**









the family patio. In one continuous shot, the camera tilts down on Al as she sees the creatures gathering around her feet. She then rushes into the house and, in another forced perspective



Makeup Reardon was the workman and founder during Early in makeup, applies applian actor C in the

pale, plucked-chicken immediacy as they scurry around the kids' feet."

The creature suits were fabricated at Reardon's North Hollywood shop and then transported to Toronto where Randy Cook was working with production designer William Beeton on the forced perspective sets. Cook, who had storyboarded all the effects sequences prior to filming, was already familiar with Beeton's designs. In translating his drawings to the screen, some of the sets needed to be built from scratch for the altered perspective while others used in 'normal' scenes had to be rebuilt to accommodate the effects shots. The sequence with Terry in the hole, for instance, involved a forced perspective set built specifically for that purpose. A portion of the set was erected some fifteen feet above the stage floor, and it was here that actor Louis Tripp was situated. Then, down below, the rest of the set was constructed four times normal size so the minions could gather around a giant replica of Terry's leg. The leg,

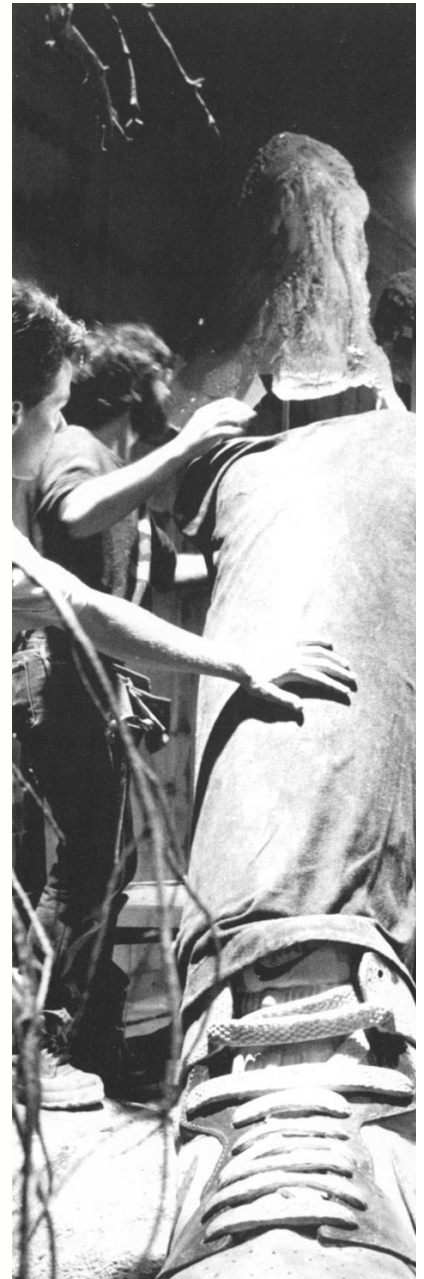
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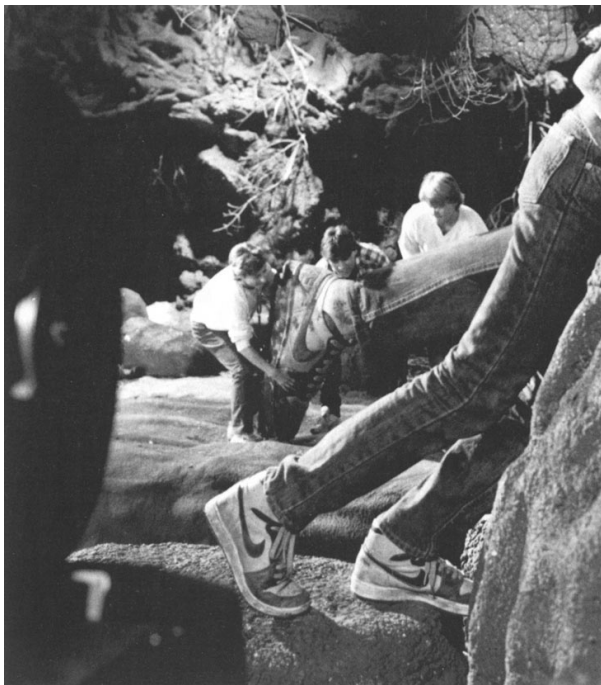
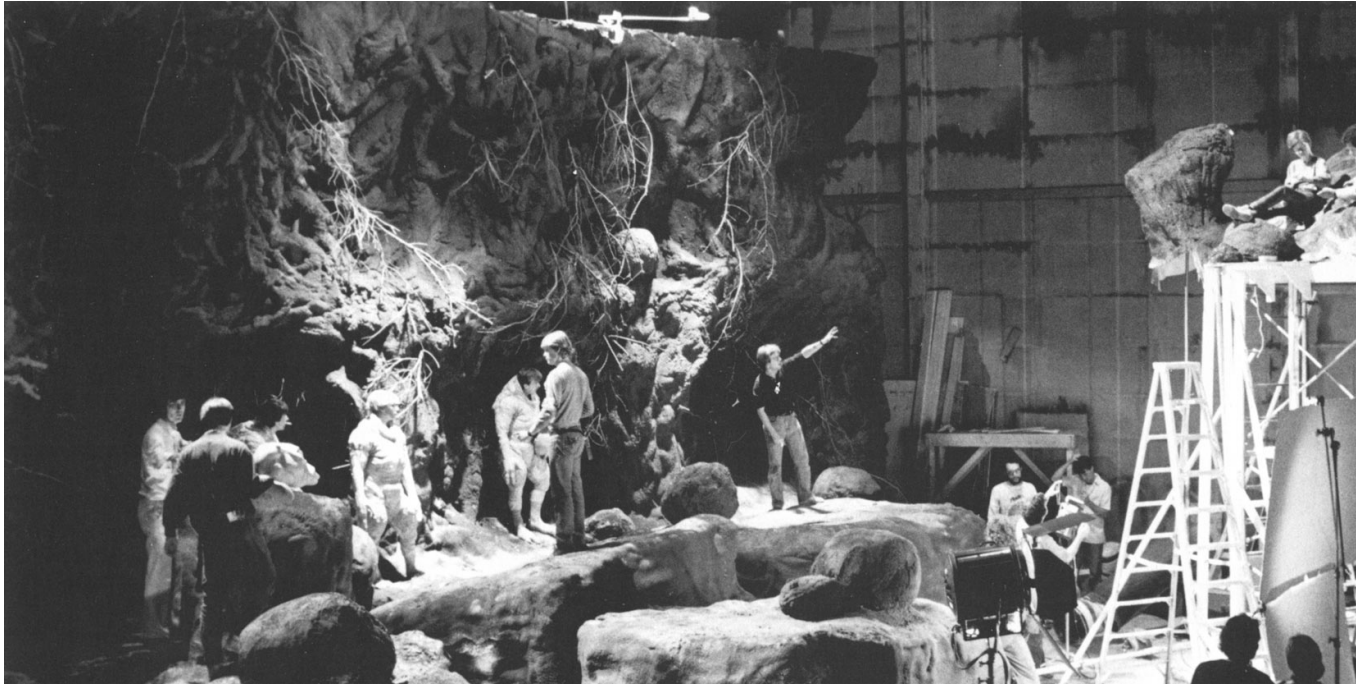
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In other instances, sets that had been constructed for normal scenes had to be reconfigured and rebuilt for forced perspective shots. "We had to convert Al's bedroom," Cook recalled. "When I got to the set, I first placed the camera up at a given height. Height is very important — actually, *all* the measurements are very important — but height is especially important so that you don't build any more set than you need to. Once I had positioned the camera above the set and lined up the shot, I used tape to mark the 'split' line on the walls of the set. Everything above that line would be built in regular scale and everything below it would be four times larger. We ended up having deceptively large sets. In fact, we filled up a whole stage just to get the effect of the one bedroom — about sixty feet worth of four-times-scale floor. The only floor that was real-size was directly under the actors. We had a big wall, big door, big dresser. The top of the dresser was hanging, actual size. We extended the big door some so it would reflect light onto the floor. The bed was hanging, but the shadow it appeared to be creating was actually a matched shadow on the big floor —

Forced perspective was also used for another sequence in which one of the kids is attacked by minions after falling into the backyard hole. In this case, actor Louis Tripp was positioned on a normal-scale section of the cave set constructed on an elevated platform. Below him on the stage floor, a larger-scale set was constructed on which the minion actors could interact with a large-scale replica of his right leg. Stagehands adjust the oversize leg to align perfectly with the young actor when photographed from above. /

Randy Cook gives instructions to the camera crew in preparation for another forced perspective cave shot. / As seen from the camera's point of view, stagehands position the giant prop leg for another shot in which minions grab the boy as he tries to



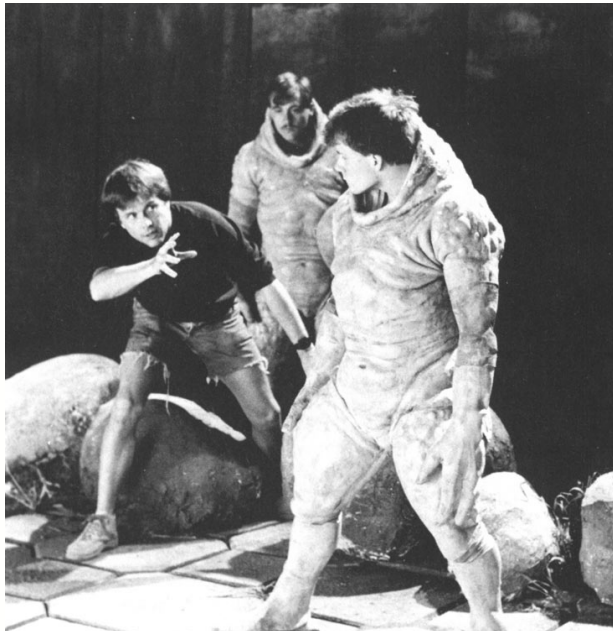








photography Peter Benison set about filming the scenes. One question they had to address was film speed. "In films like *Dr. Cyclops* — where supposedly small people would handle out-size props — if one of the characters dropped a big gun, for instance, the speed of its fall would be dictated by its actual size and not its apparent size. Thus, if the gun is three times scale, it would drop three times too slowly. We wanted to override that and help make the minions look like they were indeed small. So we lowered the film speed to what I figured would make the physics look correct — 12 frames per second. It seemed to work dramatically, even though the characters were quarter-size and the speed was only twice as fast. Of course, that meant the actors playing normal-size people had to be coached to move at half speed. This usually wasn't much of a problem because the actors normally had to do only simple movements during the perspective shots. We knew from the outset that there would be no time for retakes. The schedule was so tight we had to get our shots the first time, because whatever we got the first time was what we had to live with. So all our 'tests'



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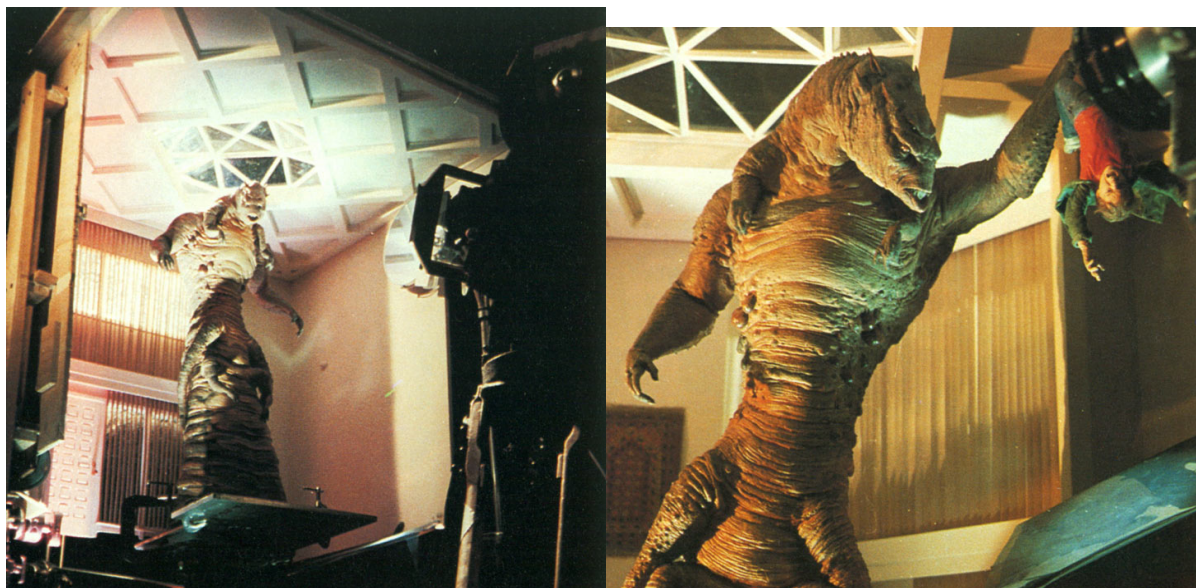
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Once the rocket penetrates the creature, the pyrotechnics start exploding within its chest. In an instant, the whole house seems to be erupting as the demon struggles to regain control. In a flash of blinding light, the boy is thrown free from the house — achieved with a small puppet shot bluescreen — and fireworks explode into the sky above. As Glen gets to his feet, he watches as the greenish-gray sky slowly ebbs away, replaced by a brilliant sunrise. "The sunrise shot actually involved two different matte paintings," Taylor said. "One was of a dark green murk with just slight indications of buildings in the background; and one was of the sunrise. In photographing it, we placed a mechanical device in front of the lens that wiped from one painting to the other. It started out on the painting of green murk. We did a sort of asymmetrical wipe which slowed down progressively so you got the feeling it was heading off toward the horizon. The boy was bluescreened into the corner of the whole scene. The sun itself was a separate exposure of a hole cut in a piece of metal with a strong light behind it — that was double-exposed into the shot. To give it a realistic look, we didn't hold the boy back with a matte. Instead, we let the sunlight flare over his body like it really would. Then, for the few frames where he actually crosses in front of the sun, I just put my hand in front of the lamp causing light to flare around my fingers so that it wouldn't look like the kid was a cutout."

In addition to the matte paintings and the tornado, Illusion Arts was responsible for all of the optical composites in the film. Some of the most complicated involved bluescreen shots with the minions. In one of the garden shots where the minions are swarming behind Al, the mass of creatures was actually one group of fifteen repeated twice to make it appear like thirty. In another scene, the same number of minions was replicated even more. "We repeated the creatures like crazy on the banister when the Demon Lord comes rising up behind them," explained Mark Freund, who assembled all the opticals. "In that scene, all the minions are dancing and singing and we used the same guys about four times each. For the shot with the girl in the garden, we just repeated one set; but there were two layers of little guys, one on each side. It's a technique you want to use sparingly in situations where you can hide it, where there are enough things moving around and enough action going on that your eye isn't distinguishing patterns."

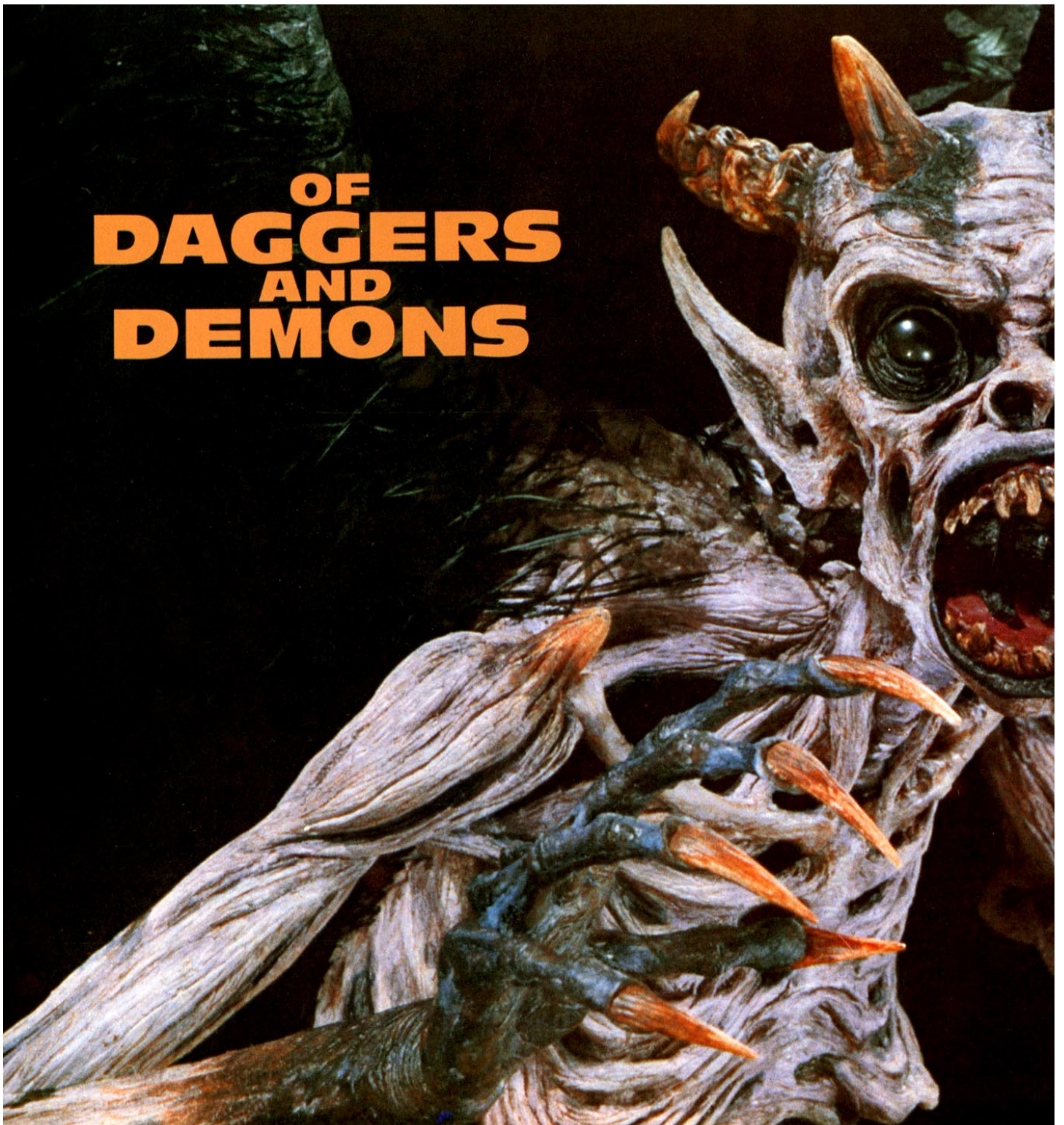
"When you first go into an effects film, you make a long list of the things you want to do," Tibor Takacs noted in retrospect. "Then, when you look at the budget you suddenly realize that you can't do all of that. so you trim it down. Then once you get



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**OF
DAGGERS
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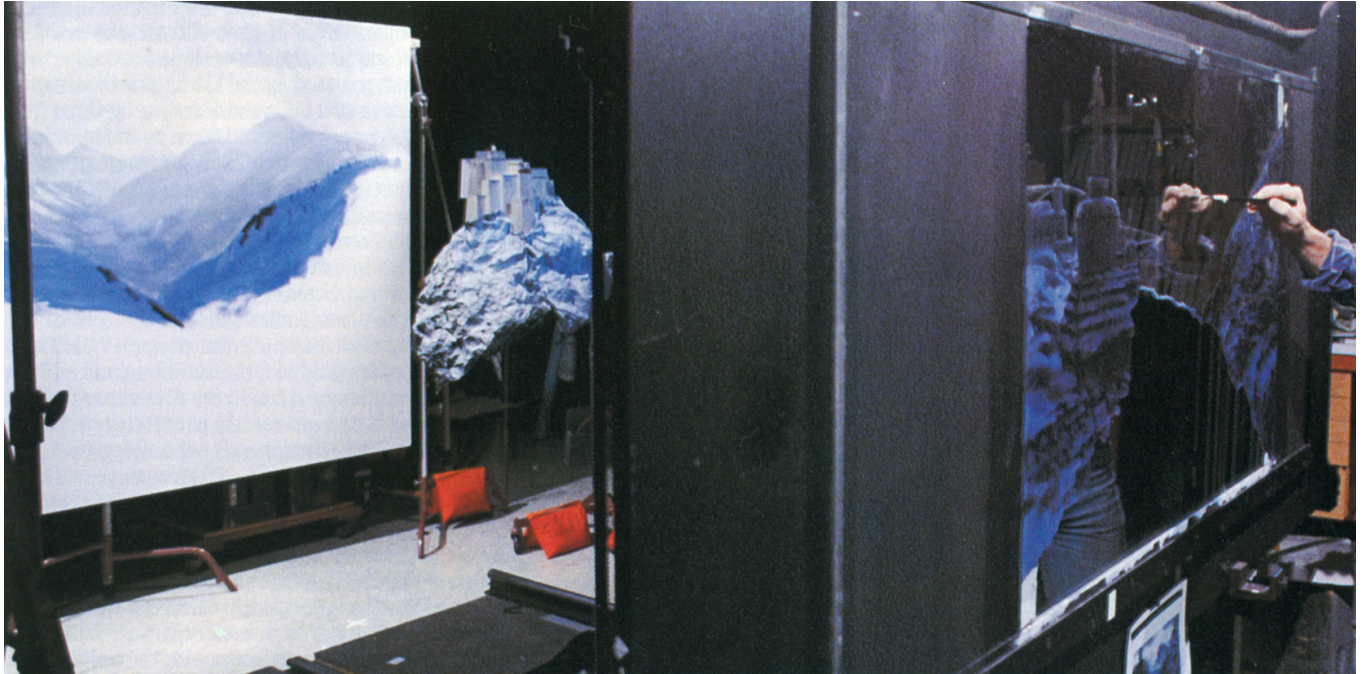


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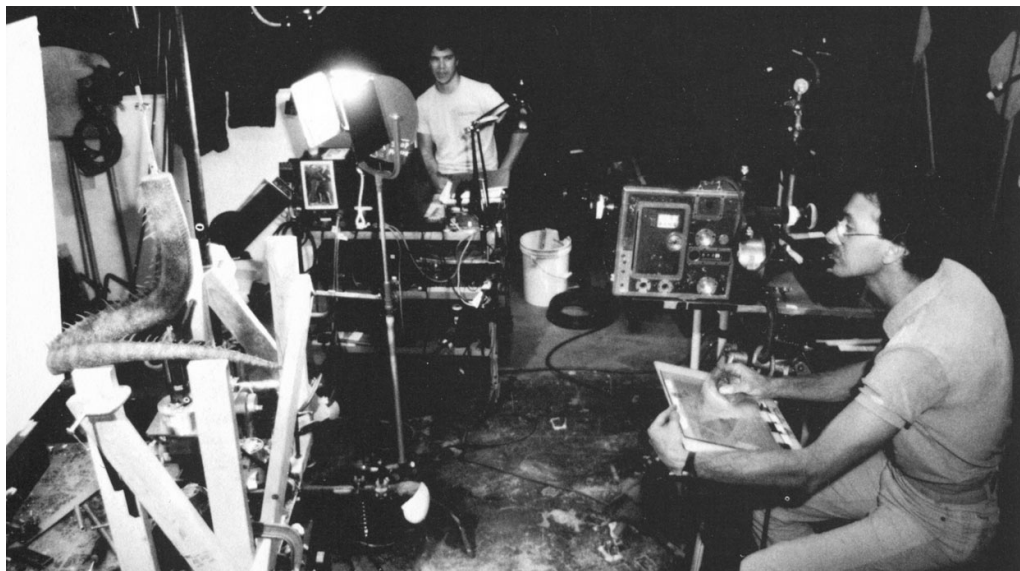
with the background. As it turned out, twenty-four frames of it." Even at that satisfied with the effect, so optical swirling smoke elements added as the

Another 'rat' sequence of a different the shooting script. As conceived, Sardo Yu — a simian-like man — were to enter Angeles fish cannery. Opening a large counter a red light emanating from behind. Out of the light steps Tarvu — the keeper — dressed in a sharkskin suit but bearing a rat and a tail resembling a cross between a slug's. Then comes the disembodied voice warning Sardo not to underestimate the threat. Though the sequence was dropped, the Dark Lord would resound once again in the effects shot — a grandiose representation.

With cabalistic sobriety, Numspa rolls the Child and calls upon the forces of evil. The wall disintegrates behind him revealing the netherworld. The camera dollies around the ground moves in sympathy. A gradual reveal of a giant spire of rock as his disintegration continues, revealing a blazing cavernous image diminishes to virtual nonexistence. The shot combined sixty-five elements — a stage shot, a miniature set, rear-projected switcheroo of the actor's image and a rear camera passes, all done with motion control.

For the spectacular scene of the brick falling behind Sardo, a miniature was constructed. Each brick was only 7/8-of-an-inch long and sculpted out of pine wood and aged. It rested on a two- by three-foot grid of slides pulled away on cue. Cameraman Kim Marks photographed the action against a 28mm lens to exaggerate space. The brick in tabletop position with the camera pointing at the slide boards were tripped, the bricks piled up. A sheet of mylar positioned fifteen feet back at an angle so as to reflect the blue screen as the brick fell.

"Lance Brackett of the stage crew lit the screen so we could virtually dial in our focus to a tenth of a stop," said Marks. "As a result



with the background. As it turned out, twenty-four frames of it." Even at that satisfied with the effect, so optical swirling smoke elements added as the

Another 'rat' sequence of a different the shooting script. As conceived, Sardo Yu — a simian-like man — were to enter Angeles fish cannery. Opening a large counter a red light emanating from behind. Out of the light steps Tarvu — the keeper — dressed in a sharkskin suit but bearing a rat and a tail resembling a cross between a rat and a slug's. Then comes the disembodied voice warning Sardo not to underestimate the Dark Lord. Though the sequence was dropped, the Dark Lord would resound once again in the effects shot — a grandiose representation.

With cabalistic sobriety, Numspa rolls the Child and calls upon the forces of evil. The wall disintegrates behind him revealing the netherworld. The camera dollies around the ground moves in sympathy. A gradual move, perched on a giant spire of rock as his di-



CINEFEX 3C





Walton began co-chairing our stop-motion department and brought his expertise to ILM. Randy Dutra kept the Berkeley shop going — the demon was made there — and Tom St. Amand was in charge of the armature work. With guys like that on board, you could hardly call me a supervisor. Kim Marks assisted me in adapting the Tondreau system to the puppets. For the first time, we had a field recorder that *worked* — but it took a great deal of fiddling around to get it going in a stop-motion mode. We could add some simple axes to the puppet and hand-animate the appendages.”

The design of the Sardo demon went through several permutations. Michael Ritchie was inspired by the ‘Night on Bald Mountain’ sequence in *Fantasia* and asked Harry Walton and Phil Tippett to study it. And indeed, it proved useful to the animators who were able to extrapolate timings from it. But the actual appearance of the creature was still a major question mark. Phil Tippett, Randy Dutra, Tom St. Amand, Cris Hammond and Ken Ralston all submitted their own versions of what it might look like. Ultimately it was Randy Dutra’s sculpture that



supervisor Ed Jones. "At first, Chris Green animated an explosion that blew off the puppet's face. There was also an effect of his face heating up, which was double-exposed in. So it looked like *something* was happening. After that, we had to get rid of the head altogether. So I jokingly went to Ken Ralston with a pumpkin and some melons and said, 'Here, explode this.' And he took me up on it! We did passes on two pumpkins. One was fleshy, the other more red. The latter was used. You couldn't read the explosion — it's purpose was to obscure the frame long enough so we could fade out on Sardo."

The next series of cuts had Jarrell fleeing with the Child and driving off. Catapulting out of the room, the demon rips through a window in a burst of flame and the car chase begins. Sardo's room element was shot off a still photograph on an animation stand, and the demon was bluescreened in. "At first," recalled Scott Farrar, "we tried to have the demon model physically blast through this miniature window in high-speed. Then the explosion would happen and you'd see a cloud of dust. We're

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Dutra was no stranger to ILM, having worked with Phil Tippett there in the creature shop on *Return of the Jedi*. He moved on to *Gremlins* with Chris Walas, returned to ILM for the first Ewok movie, then did most of the models and some of the animation for *Dinosaur!* On the Ewok project, he designed a stop-motion dragon and sculpted Tippett's concept for some two-legged dinosaur creatures. After helping Tippett sculpt *Howard the Duck*'s insect monster, he started on the Sardo demon. Based upon his reading of the script, Dutra's vision of the creature was more in the vein of a nightmarish apparition than a traditional thickly-muscled devil with horns. "I wanted it to be eerie and still retain some human characteristics. I thought of concentration camp victims and horrible hybrids, like an emaciated skeletal structure with a swollen belly and agile animal legs. The script called for a lot of power; and the idea of a slightly built being imbued with incredible strength fascinated me."

Dutra did a thumbnail sketch of the creature and a silhouette to determine the strength of his composition. After a more finished drawing and a watercolor, he proceeded to build the model. Tippett gave him free rein. "I studied rock textures for a parched skin effect, and did the first prototype in wax, which was presented to Ken Ralston and the director. When the design was chosen, I did a fifteen-inch model made of Sculpey to approximate the size of the animation puppet. They wanted to see different designs of heads, so I sculpted four. Ritchie wanted to go with a face that was more distinctly human than decayed, so I tried to do something creative within those boundaries. What I *really* wanted — and ended up incorporating — was to have the eyes deep-set, thereby leaving glimmers of highlights to suggest some kind of demonic intelligence."

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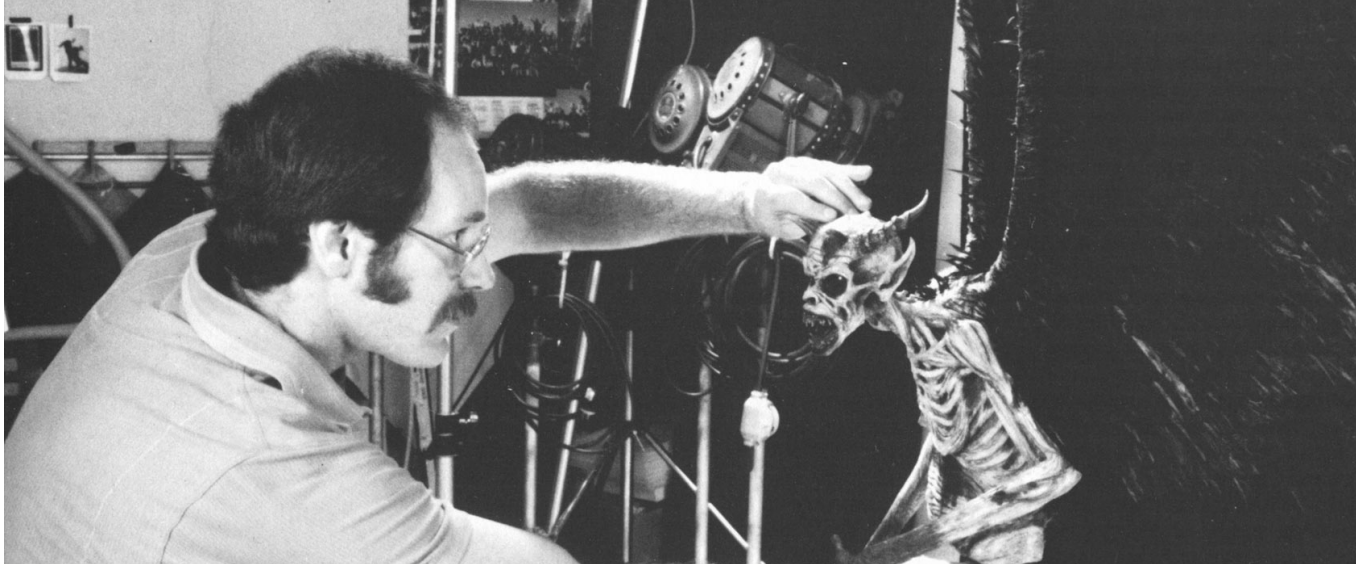
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For the rest of the sequence, Tom St. Amand, Phil Tippett and Harry Walton animated the demon on a schedule that ran from August to October. Each had his own crew. St. Amand was concerned mostly with the kinetic shots using the Tondreau system and the fifteen-inch puppet. Kim Marks ran the camera while Bob Hill and Pat McArdle manned the computer controller. Tippett devoted his time to closeups involving the torso figure, with Marks again doing the lighting. Meanwhile, Walton handled most of the static shots in conjunction with cameraman Terry Chostner.

"We didn't work on separate sequences," Walton pointed out. "It wouldn't have been practical. Instead, I laid out a schedule dictated by the availability of the puppets and the similarity of the scenes. There were four groupings, one of which we called a 'full static grouping' using one of the full puppet figures in situations where the shots were locked off and the Tondreau was not required. Then there were the 'full Tondreau shots' which used the full puppet but had the camera in motion. These shots were grouped together and embraced different sequences. Then we had the torso shots which were broken down into 'torso static' and 'torso Tondreau.' Our work flowed together quite well. Phil, Tom and I always discussed the actions with Ken Ralston and went over the cut black-and-white sequence before we started on a shot. The animation style was uniform — you





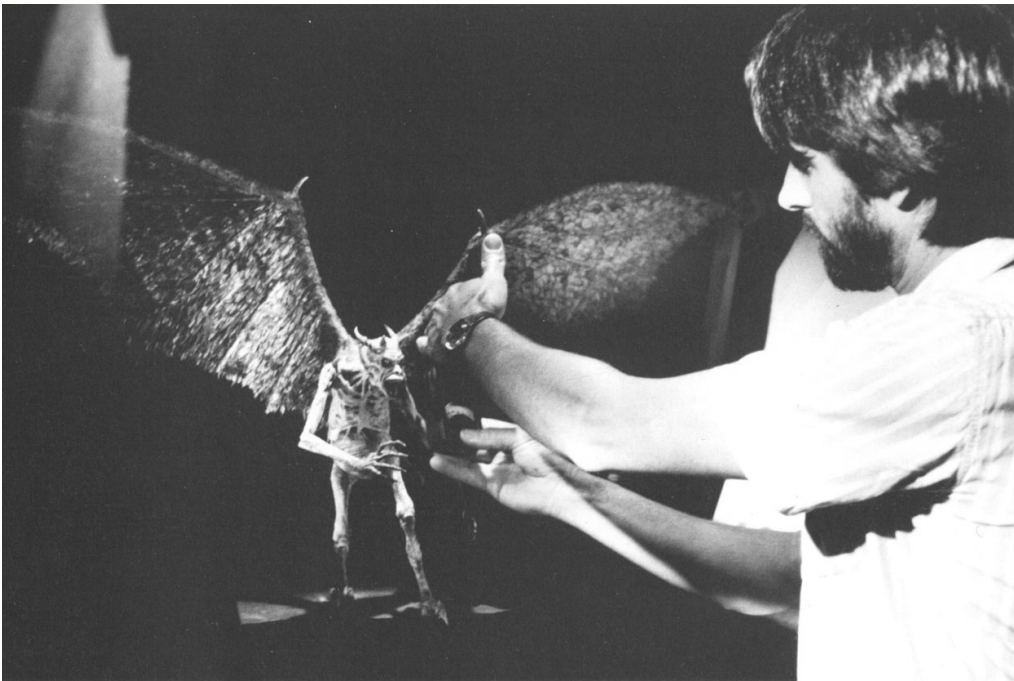


the flow. He can't risk compromising the whole shot for physical reasons. Sometimes we had two setups going at once, which was a real madhouse for me."

Filming the demon's aerial pursuit over the highway was an arduous affair. Only a fragment of it made the release print. As Jarrell speeds down a gravel road, the creature clips a row of telephone poles, rips a hole in the car roof — an insert courtesy of Ken Ralston, who wore a monster hand — and soars off. The location plate was filmed by Stewart Barbee on Mulholland Drive in Los Angeles, bumps and all, using the Tondreau field recorder. The moves were stored on an IBM disk. Four months later, Tom St. Amand animated the demon against a blue screen. The bumps were replicated on the puppet by playing back the disk. The one shot the Tondreau system could *not* handle, however, showed the demon clipping the telephone poles, which were rigged on location to topple over on cue. The interaction had to be exact; so for this particular shot, Scott Farrar and Dave Hanks projected the background scene onto a curved white card and used a point-plot system devised by Craig Hosada. "The first thing we did," explained Farrar, "was roto-scope the plate through the lens of the Vistacruiser motion control camera and devise a bounce program. By projecting the footage onto the card a frame at a time, we could plot the twists and tilts of the plate. This was very hard to do with a winding road and a camera that eventually turned to the right and pointed



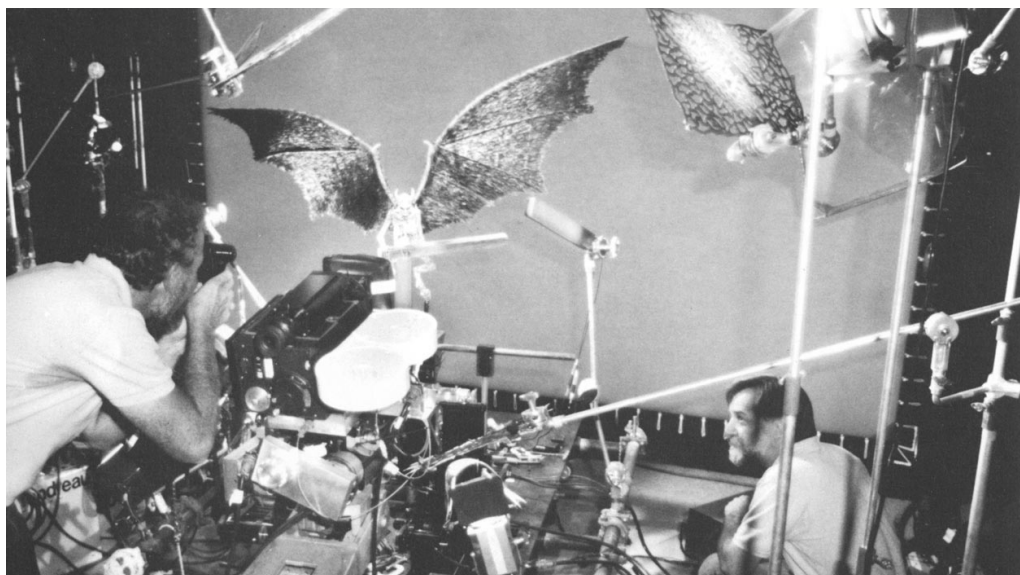




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